



PETRAD Course

National Management of Petroleum Resources

Stavanger, Norway; 11th – 22nd March, 2019

Programme



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National Management of Petroleum Resources

Programme information

It is common for countries which have petroleum resources, to have legislated that the resources in the ground belong to the nation. Consequently, the exploitation of the resources will be subject to management by the national government, acting as the custodian of the resources on behalf of the nation. Their exploitation should result in lasting benefits for the nation, in effect transforming the valuable assets in the underground into assets which will benefit the present and future generations.

Governments must establish legislation, institutions, capabilities, and procedures in order to manage petroleum resources. The resource management will be expected to pursue a number of different goals, often including the following:

- Identifying and building **knowledge of resources** in the ground and the possibility of extracting them profitably;
- Effective **extraction** of the resources, including high rates of recovery;
- Protection of the **safety** and **health** of people;
- Protection of the natural **environment**;
- High **financial value** for the State from the extracted resources;
- Effective **management of revenues**, securing their availability for important national tasks;
- **National participation** in the petroleum sector as employees and suppliers;
- Favourable overall impact on the **non-petroleum sectors** of the economy and society;
- **National control** of the sector, while also engaging international enterprises to provide essential capabilities.

Evidence from several countries suggests that successful national management of extractive resources cannot be taken for granted. It also suggests that successful resource management has some general characteristics while also requiring careful adaptation to the particular circumstances of each nation. Petroleum activities anywhere tend to have profound transformative impacts on society. Ensuring that those impacts will be overwhelmingly favourable, long lasting and benefitting the population in general, are the overall challenges for national resource management.

Course objective and target audience

The course aims to expand participants' understanding of the requirements for managing the petroleum sector of a nation, in terms of the context, process and content of effective resource management. They shall emerge from the course better equipped to contribute to this process.

The course has been designed with particular consideration to participants who are senior public administrators and who are faced with issues concerning petroleum. They may be officials of a ministry or a regulatory authority with responsibility for energy, national finances, law, the environment or other portfolio affected by the petroleum activities. In addition, the course will be relevant for politicians, oil company officials, higher level educators, journalists and civil society representatives with professional interests related to the petroleum sector.

Participants should have University level education (Bachelor or higher) and 3 or more years of work experience related to the petroleum sector and/or public administration.

Course content

1. Managing natural resources: General principles and international practice.

Learning objective: Participants will understand the fundamental positions of key participants in the petroleum sector, and essential requirements for national management of resources.

1.1. Introduction to the national management of petroleum resources.

A brief lecture to outline the challenge of managing the petroleum resources of a nation. Based on Norway's experience, some key goals and principles of natural resource management are posited.

1.2. State sovereignty and ownership as premises for resource extraction.

Many countries have legislated that petroleum resources in the ground belong to the nation, irrespective of ownership of the land surface. International law allows states to assert ownership and sovereignty also over resources under the ocean, within certain limits. Nevertheless, petroleum operations are usually carried out by commercial entities. The lecture reviews the fundamental roles of states and companies in petroleum extraction; their goals, organization and interaction.

1.3. Standards of governance.

What must a Government do to fulfil its role in managing the nation's resources? The lecture reviews principles of public administration, stakeholders in relation to the petroleum resources, state institutions and their roles, and general features of good governance.

1.4. Strategic interests of the host country.

Host countries and petroleum companies have different strategic interests in the petroleum sector. This lecture introduces the national perspective. In addition to financial benefits for the national treasury, host country Governments often emphasise national control, resource mapping, environmental protection, local employment and capacity development, domestic energy supply, and other ways in which society may be affected by petroleum. Governments also need to be concerned with financial uncertainty, i.e. how its financial position will be affected if oil prices (or other conditions related to petroleum) develop unfavourably.

1.5. Overview of the petroleum value chain.

"Value chain" means a set of activities which are carried out in order to obtain something valuable. This lecture reviews the petroleum sector as a set of activities required to bring oil and gas from underground reservoirs to the final consumers, and also following the resources through a life cycle from exploration to production and abandonment.

1.6. The global dimension of the oil and gas industry.

The lecture briefly reviews implications of being part of global markets for oil, (gas), exploration rights, specialised inputs.

1.7. Promoting investments in a country to the oil industry.

Before a country grants petroleum rights to oil firms, a range of preparations must be made. This lecture deals with preparations aiming at attracting the interest of capable companies for petroleum activities. If successful, this will put the Government in a good position to select companies of high quality as licensees (contractors). Companies tend to appreciate political stability, lenient fiscal terms and exploration acreage with a demonstrated potential for discoveries.

1.8. Norway's experience with national management of petroleum resources.

As Norway is widely acknowledged to have managed its petroleum resources rather well (aided by generous amounts of good luck), the Norwegian approach is presented. The lecture reviews the

early steps (1960s), the main enduring components of Norwegian petroleum policy and the fundamental beliefs underlying it, the legal foundations and organisation. The licensing framework and procedures for development are introduced.

1.9. Challenges of participating countries with petroleum resource management.

Discussion among participants

1.10. Strategic interest of oil companies and international supplier industries.

Host countries and petroleum companies have different strategic interests in the petroleum sector. This lecture introduces the company perspective. Companies generally aim to maximise financial value for their shareholders. Beyond this general goal, firms in the petroleum industry differ much in size, scope of operations and strategies, including strategies for getting access to petroleum resources. Many companies express commitment to social responsibilities in various forms.

1.11 Application of the UN Framework Classification for Resources.

The UNFC has been developed by the Expert Group on Resource Classification of the UNECE under a global mandate from the UN Economic and Social Council. It is building a new narrative in resource management, in alignment with the Sustainable Development Goals (SDGs). This lecture introduces the basics of the UNFC and shows how it serves the tasks of policy formulation, government resource management, industry business processes and capital allocation covered in this course.

2. Governance, policy and regulation

Learning objective: Participants will understand the functions of policy, legislation and other regulatory instruments, and understand key issues of methodology in developing these.

2.1. Energy policy and petroleum policy.

The lecture explains the concept of policy, for a Government, in general. Energy policy addresses the supply of energy for a nation, whereas petroleum policy is concerned with transforming resources in the ground to lasting benefits for the nation. Some international examples of petroleum policy are referred to.

2.2. Process and stakeholder engagement in policy development.

The lecture reviews the process of drafting, deciding and implementing policy; particularly petroleum policy. It discusses the issue of when to ideally implement or revise policy.

2.3. The extent of legislation: What needs to be regulated?

The functions of petroleum legislation are reviewed: What legislation needs to cover, and some general challenges for establishing appropriate legislation for petroleum resources. The need for legislation at different stages of petroleum resource life cycle is reviewed.

2.4. Levels of regulatory instruments: Law, regulations and agreements.

Petroleum operations entail rights and obligations for the involved companies as well as the State. These rights and obligations can be specified in acts of law, in administrative regulations or in contracts. The implications of the different kinds of legal instruments are reviewed, with some international examples, and with references to some key issues in the relationship between State and companies.

2.5. Regulatory approaches to protect health, safety and the environment (HSE).

Authorities face some important questions of regulation, some of which need to be considered before issuing petroleum rights: Should we rely on companies to operate in accordance with their own high standards and international, good industry practice, or should national authorities define more specific safety regulations? Should our regulations prescribe detailed rules for how to operate installations safely, or should we set requirements of a more general nature? The lecture reviews principles for good regulations in the area of health and safety on the basis of Norwegian experience in the field.

2.6. Environmental protection as a national regulatory task.

The lecture reviews the role of a national regulator for environmental protection in respect of the petroleum sector. Issues include knowledge-based management (Baseline, SEA, stakeholder involvement and the general social dimension); sector collaboration and sector responsibility; environmental concerns and protection; laws and regulations; regulatory principles and best management practices/principles and compliance monitoring.

2.7. Management of the petroleum revenues

Management of the nation's petroleum resources is fraught with several dangers. There is the urgent need for transaction controls to ensure that payments due are received in the appropriate accounts. Further, there is the need to ensure that the money is spent wisely in the national interest, which may require saving much of it for future generations. Unwise spending of large petroleum revenues is not only a waste of good money; it may also undermine non-petroleum sectors which are important to the economy.

3. Organisation and regulatory capacity building

Learning objective: Participants will understand the essential functions of public institutions in relation to the petroleum sector, and the requirements for building capacity to enable effective national engagement in the sector.

3.1. Significance of existing governance structures

The lecture is based on the recognition that nations are at different development levels and have different traditions of government when petroleum operations are initiated, which can have important implications for how the country can manage its petroleum. Norway's experience is useful, but not necessarily replicable elsewhere.

3.2. Public administration: Principles and structures for good governance

This lecture builds on and revisits issues raised in 1.3, early in the course, on the requirements for good public management in general and for the petroleum sector in particular.

3.3. Organisation, capacity building and compliance for national resource management

Building on previous lectures in the course, this lecture reviews the requirements for developing an effective Government authority for resource management in the petroleum sector.

3.4. Organising the national management of HSE

Building on the prior lecture 2.5, this lecture 3.4 reviews the requirements for effective organisation of national authorities' management of the health, safety and environmental protection in the petroleum sector. The Norwegian solution is one, but not necessarily the only effective approach to this. The lecture will review the implications of alternative approaches for organising these regulatory functions for the petroleum sector, e.g. whether they are separate or integrated with other regulatory functions.

3.5. The fiscal system

Countries in which petroleum is produced (or preparing to do so) require a fiscal system, which comprises the provisions for sharing value between the nation and the commercial enterprises engaged in petroleum operations. The fiscal system can be based in law, contracts or a combination of both. The most common types of fiscal provisions are reviewed. Fiscal design considerations are briefly introduced.

3.6. Financial controls and transparency

All fiscal systems for the petroleum sector entail the need to assign value to incomes and costs. They must be reported by the operating entities to the authorities, who need means of verification. Financial reporting gives rise to a number of challenges with potentially large implications for the public purse, not least the issue of transfer pricing (i.e. transactions between related parties located in different tax jurisdictions), which some firms have been known to use aggressively in order to increase their share of value from extracted resources.

3.7 Concessions and Contracts

The lecture surveys the various forms of granting rights by the host country to oil companies. It compares concessionary with contractual regimes and then reviews the many types of petroleum contracts and compares them to each other. The objective is to help participants appreciate the options available to host countries when considering offering petroleum rights to IOCs.

4. Managing the petroleum field life cycle

Learning objective: Participants will understand the essential challenges and requirements for national management of petroleum activities throughout the life cycle of reserves.

4.1. Preparing new areas for petroleum activities: Strategic environmental assessments.

Strategic environmental assessment is a tool that authorities can use in order to assess the impacts which petroleum operations may have on the social and natural environment in a region. It is relevant changes in operations which can have significant external impacts.

4.2. Strategies for assessing the resource base.

Effective management of a nation's petroleum resources requires a systematic, long term approach for building knowledge of the underground resource base. Such knowledge is primarily the result of exploration work, but also of data which can be collected from field production. Exploration activities are high cost, and also high risk in the sense that high expenditures often do not result in any valuable discovery. Authorities can make commercial enterprises bear most of these costs and risks through production sharing agreements or other licensing arrangements, in which work programme obligations is an instrument for assessing the resource base. Authorities also need to develop the capability to manage resource data, to secure access to all existing data concerning the underground, and to make effective use of the information as a basis for awarding petroleum rights.

4.3. Awarding exclusive petroleum rights (Licensing rounds).

The lecture reviews the essential requirements for a successful process of awarding petroleum rights. Some countries pursue an "open door" policy for this, while others have conducted structured, competitive licensing rounds. Different processes can be suited to different circumstances, while some requirements are essential for any licensing process.

4.4. Plan for development and operations.

In many petroleum jurisdictions, the development of oil and gas fields is subject to Government's approval of a Field Development Plan submitted by license holders (contractors). This is often a major opportunity for authorities to influence the way in which resources are developed, with a need to find a solution acceptable to the investors as well as society. It may be desirable for the companies and

authorities to engage in constructive dialogue leading to the submission and approval of the field development plan.

4.5. Joint operations and infrastructure.

Petroleum developments can provide many opportunities to reduce costs by co-ordinating the development and use of facilities which can serve several fields and companies. Petroleum legislation often provides for certain obligations for companies to pursue such opportunities, and for authorities to require it. The lecture also visits the issue of unitisation, the purpose of which is to provide for joint and optimal development of resources which extend into several license areas, and across international borders.

4.6. The production phase: Maximising resource value and protecting the environment.

Safe operations and effective production are generally the central goals for the production phase of a petroleum development. Good operators take a long term and systematic approach to maintenance of installations in order to maintain safety and high regularity of production, and to keep the facilities operable for many years. Technological advances have been made in enhanced oil recovery. High recovery rates are usually in the Government's interest, but differing interests between firms and Government may arise due to fiscal terms and different perspectives on investment return.

4.7. The final stages: Tail end production and abandonment.

Modern petroleum operations come with a requirement for license holders (contractors) to safely plug all wells and restore operational sites to near original conditions. Provisions for this need to be made already in the initial petroleum contracts (licenses), and funds for the decommissioning operations must be provided for.

5. General issues in resource management

Learning objective: Participants will understand key challenges in the interaction of the petroleum sector with other sectors and dimensions of society.

5.1. Promoting national content in the petroleum sector.

Building on prior lecture 3.7, this lecture reviews strategies and practices for promoting the participation of national citizens and businesses as employees and suppliers to petroleum operations. Such strategies may comprise a mix of capacity building (reviewed in 3.7) and mandated requirements for firms in the sector to give preference to national employees or suppliers.

5.2. Affected third party interests (fisheries, agriculture, other activities).

This lecture draws on international experience in assessing how interests outside the petroleum industry might be affected by petroleum operations. Fisheries and agriculture are among sectors likely to be physically affected by petroleum operations. Class discussion is invited.

5.3. Gender mainstreaming in the petroleum sector.

There has been increasing international recognition of the need to promote both women and men as participants in the petroleum sector on all levels. There will be some reviews of gender issues and gender mainstreaming practice.

5.4. Transparency, labour organisations and civil society in the petroleum sector.

The lecture addresses some important aspects of the relationship between the petroleum sector and the society in which operations take place, recognising that society can be significantly influenced by the sector. Internationally there has been a clear drive in the last couple of decades towards demands for transparency, i.e. that transactions, contracts and activities of the petroleum sector should be

visible and subject to public scrutiny. Labour organisations have an important role not only for negotiating compensation terms but also as monitors of the safety and healthiness of working conditions, and management practices. Civil society, comprising non-governmental organisations, the media and others, can serve society by providing alternative viewpoints on developments in the sector and speaking on behalf of citizens' interests.

Practices and plenary discussions

Participants will be assigned to groups of approximately 5-6 participants, which will be given tasks related to the lecture contents. Most tasks will be related to an imaginary country, in which the groups will have certain roles. Some tasks will be discussed in the plenary and outside the role play setting. Themes to be covered by group work include the following:

- G-1 Oil company interests and host nation interests
- G-2 Promoting investments in a country / the attractiveness of a country for petroleum firms
- G-3 Regulatory approaches to HSE
- G-4 Resource base assessment and license rounds
- G-5 Managing the development phase
- G-6 Production and tail end management
- G-7 Petroleum sector organisation
- G-8 Revenue management, financial controls and transparency
- G-9 National capacity building and supplier sector development
- G-10 Civil Society including labour organization

In addition, participants will be expected to devote some evening time to preparations.

Lecturers



Farouk Al-Kasim is an internationally acknowledged advisor on petroleum resource management. He is a trained geologist. After moving to Norway from his native Iraq he joined Norwegian civil service in 1968, when the Norwegian petroleum sector was in its infancy. Mr Al-Kasim was instrumental in developing **Norway's** national management of the sector. He was Resource Director at the Norwegian Petroleum Directorate from its formation in 1972 to 1990. Since then he has shared his insights with the governments of many nations seeking to develop effective management of the petroleum sector. He contributes to Petrad's courses in the fields of overall public management of petroleum resources, sector organisation, petroleum policy and licensing. He has written two books on petroleum resource management.



Ove Tobias Gudmestad is Professor of Marine Technology at the University of Stavanger. He holds a Ph.D. in wave force analysis. For 33 years, he was employed with Statoil with responsibilities in field development engineering and research. His research focuses on marine and arctic technology, on which he has written several papers and books, also addressing risks related to earthquakes and other risks affecting installations in marine and arctic environments. In addition to his main affiliation with the University of Stavanger, he is an adjunct professor at the University of Tromsø and visiting professor at the Gubkin Russian State University of Oil and Gas in Moscow. He holds honorary doctoral degrees from two Russian universities. Ove Tobias Gudmestad has been a key contributor to Petrad programmes since the early 1990's.



Sigurd Heiberg holds a BSc from the University of California and a SM degree from the Massachusetts Institute of Technology. He has also received formal management training at IMD on international management and High-Performance Boards. Sigurd has spent most of his working life in Government and industry working on petroleum resources management and strategy, both as Deputy director of resource management responsible for development and production at the Norwegian Petroleum Directorate, as Petroleum exploration advisor to the Minister of Water, Energy and Minerals of Tanzania and as a member of Statoil's Corporate strategy team. He joined Petrad as a Project Director in 2017.



Erik Jarlsby is an advisor and lecturer on energy and economics through his own firm Erik Jarlsby AS. He holds a Ph.D on hydrocarbon markets from the university of Twente in the Netherlands, and a business degree from St. Gallen in Switzerland. He has been employed with oil firms Mobil and Statoil, and petrochemical firm Borealis Polymers. His responsibilities with those firms covered the full range of upstream and downstream petroleum commercial issues, including trade in natural gas liquids. Since 1997 he is an independent consultant and lecturer based in Stavanger, working on issues of energy, strategy and economics.



Bjørn Kristoffersen is an advisor on environmental management for the petroleum sector through his firm Eco-Management Support. He holds a master (MSc) degree in civil engineering from the Norwegian University of Technology and Science. He worked for 10 years on public sector spatial and technical planning before joining Statoil in 1984, where he was responsible for environmental impact assessment for several development projects in Norway and internationally. He was seconded to the Azerbaijan International Operating Company in 1994 and oversaw the environmental and social impacts of large oil and gas developments in the Caspian region. He has been a vice president of Statoil with responsibility for environmental and social relations internationally.

As an independent consultant since 2008 he has assisted Governmental and corporate clients on environmental management in Africa, the Middle East and Europe.



Bjørn-Erik Leerberg is a Partner of the law firm Simonsen DA. He was educated at the University of Oslo, Faculty of Law, and the Academy of International Law at the Hague. He is a fully licensed lawyer and worked previously in the Royal Norwegian Ministry of Petroleum and Energy from 1991 to 1998. His last position there was Head of Petroleum Law and Legal Affairs in the Oil and Gas Department. He has also previously been attached to both Norwegian and International Law firms. During this work he has participated in consultancy work on behalf of international organisations including the UN, national governments, state owned and private international oil companies in Africa, Europe, FSU, Latin

America, the Middle East and in the Far East.



Klaus Mohn holds an MSc in economics from the Norwegian School of Economics (NHH; 1991), and a PhD in petroleum economics from the University of Stavanger (2008). His background includes academic research at Statistics Norway (1992-1994), macroeconomic research at DNB Markets (1994-1996), as well as a variety of positions in economics, finance, strategy, and communication with Statoil (1996-2013), where he also served as corporate chief economist (2009-2013). Primary research interests lie in the intersection between economics, energy, and resource management, with a particular

concern for the tension between energy, petroleum, and climate change, including economic spill-overs and policy implications for resource-rich economies (like Norway).



Janka Rom is senior geologist at the Norwegian Petroleum Directorate. She has a cand.scient in sedimentology from the University of Oslo (2001) in Norway. She got a position at the NPD in 2003, and up to 2010 she has worked with reservoir modelling, development of discoveries and field operations. From 2011 she has worked with exploration strategy, the yearly APA (Awards in Predefined Areas) licencing rounds where she was the project manager for two years, and as Discipline coordinator for geosciences at NPD. Currently she is the project manager for the 24th licencing round in Norway.



the Northern Barents Sea.

Jorge Sanchez is a senior geologist at the Norwegian Petroleum Directorate. He has a bachelor in Marine Science from the University of Vigo (2008) in Spain and Master in Arctic and Marine geology and geophysics from the University of Tromsø (2009) in Norway. He started at the NPD in 2010 and has worked in exploration since. He is mainly involved in the numbered rounds evaluating open acreage and applications for new licenses. In addition, he has worked following up exploration and production licenses in the Norwegian Sea and Barents Sea. Now he is involved in basin modelling and geochemistry studies in



two years as a resident adviser to Liberia's Government with a focus on gender mainstreaming in the energy sector.

Kim Chi Tran-Gulbrandsen is a project director with Petrad. She holds a Ph.D. in chemistry from Murdoch University, Australia and worked as a research scientist at the French National Research Centre in Paris. She also worked as a programme specialist in the Science and Education Sector of Unesco in France, Thailand and Indonesia; as an associate professor at the Kwansai Gaijun University in Kobe, Japan. After moving to Norway in 2005, D.r Tran-Gulbrandsen worked for several organizations including the Norwegian Water and Energy Directorate on international development projects. This included



experience from management positions, including 13 years abroad within exploration and business development. She returned to Norway in 2013 and joined Petoro at the end of the year.

Berit Tvedt is a member of the Board of Petrad, and is currently Managing Director of Petrad. She has a broad petroleum industry experience, having worked more than 30 years in Norwegian government and NOC institutions. She holds a Master's Degree in Economics from the University of Oslo. She joined the Norwegian Petroleum Directorate (NPD) in 1985 and had management positions within exploration/concession round economics and field development economics. She moved to Statoil in 1990, and had extensive

Course venue and hotel

The lectures are held at the PETRAD training venue located about 5 km from the centre of Stavanger. PETRAD will provide transport to and from all the lectures and activities. The venue is located in the same building area as the Norwegian Petroleum Directorate (NPD) and Petroleum Safety Authority, Norway (PSA).

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